

### ABSTRACT

A voltage regulator with an input terminal and an output terminal has a printed circuit board, a substrate mounted on the printed circuit board, and a first flip-chip type integrated circuit chip mounted on the substrate. The first integrated circuit chip includes a first power switch fabricated therein to alternately couple and decouple the input terminal to the output terminal. A filter is disposed to provide a substantially DC voltage at the output terminal, and a control circuit controls the power switch to maintain the DC voltage substantially constant.

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